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EXAMINER	
KIM, DAVID S	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/781,985	MAHLAB ET AL.
	Examiner	Art Unit
	David S. Kim	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4 and 6-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4 and 6-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. **Claim 14** is objected to because of the following informalities:

In claim 14, "said one of more optical channels of the optical path" lacks antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Applicant's response to the rejection of **claims 1, 2, and 4-17** in the previous Office Action (mailed on 01 June 2007) is noted and appreciated. Applicant responded by providing an argument:

> "The Examiner's attention is invited to page 6, line 14 - page 7, line 23, which discusses the calculation of chirp for the linear condition of a particular optical path, and for non-linear systems. Further, the Examiner's attention is invited to the references submitted in an information disclosure statement filed on even date herewith. These references all teach various techniques for measuring chirp in optical networks. Short portions of abstracts and summaries are provided to show that the references indeed deal with measuring chirp and teach specific methods and tools for performing the measurements" (REMARKS, p. 10).

Then, Applicant simply concludes:

> "Applicant respectfully submits that at the time of filing the application, a skilled artisan would be enabled to perform measurement of optical chirp" (REMARKS, p. 10).

Examiner accepts Applicant's conclusion as a statement of admitted prior art. Accordingly, the previous rejection is presently withdrawn.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 1, 2, 4, and 6-18** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In particular, notice the following limitations in independent claims 1 and 16:

"one chirp threshold value preliminarily known for said ***network section*** when being in ***its linear condition***" (emphasis Examiner's).

However, notice that the specification teaches that these "network sections" comprise optical fiber (e.g., p. 6, l. 20 – p. 7, l. 23). Optical fiber is a nonlinear material, so the real, actual, physical "network sections" would also be nonlinear. That is, these "network sections" would never "be in a linear condition" since these "network sections" comprise nonlinear material, i.e., optical fiber. Accordingly, the limitation constitutes subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Rather, due to the nonlinear nature of these "network sections" (through their constituent optical fibers, which are nonlinear), the inventor ***could not*** have had possession of the claimed invention. Also, notice similar subject matter additionally introduced in dependent claims 2, 11, and 13.

As a remedy, Examiner respectfully suggests Applicant amend the language of these claims so that they contain subject matter that the inventor ***could*** have possessed. For example, although a real, actual, physical "network section" would be nonlinear, Applicant does disclose an ***abstract, calculated, mathematical model*** of a "linear" optical fiber path by not employing non-linear terms in this model (p. 6, l. 14 – p. 7, l. 23). The calculated chirp value(s) of/from this "linear" model (i.e., model not employing non-linear terms) of network sections/optical path would constitute an example of subject matter that the inventor could have possessed. Of course, Applicant is free to investigate other suitable avenues for overcoming this rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Roberts as the primary reference

7. **Claims 1 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (U.S. Patent No. 5,963,312) in view of Kikuchi et al. ("Analytical evaluation technique of self-phase-modulation effect on the performance of cascaded optical amplifier systems", hereinafter "Kikuchi") and the admitted prior art (hereinafter the "APA").

Regarding claim 1, Roberts discloses:

A method of traffic management in an optical network, comprising:

detecting a condition of non-linearity in a network section corresponding to an optical path extending in said network (monitor 18 in the Figures) by measuring an indicator of non-linearity (e.g., col. 5, l. 6-8) of an optical signal passing in the network section,

comparing a value of the indicator of non-linearity with at least one threshold value preliminarily known for said network section (e.g., "predetermined threshold" in col. 5, l. 6-8), and

in case the condition of non-linearity is detected in said network section (e.g., col. 5, l. 18-19), making a traffic management decision in said optical network for restricting or avoiding use of said network section in the network (e.g., "reducing the launched power level" in col. 5, l. 20).

Roberts does not expressly disclose:

detecting a condition of non-linearity in a network section corresponding to an optical path extending in said network ***by measuring chirp*** *of an optical signal passing in the network section,*

comparing a value of the ***measured chirp*** with at least one ***chirp*** threshold value preliminarily known for said network section ***when being in its linear condition.***

Regarding the ***chirp*** limitations, it is known that chirp is an indicator of non-linearity, as exemplified by Kikuchi (e.g., section II on p. 869+). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ chirp as an indicator of non-linearity in the method of Roberts. One of ordinary skill in the art would have been motivated to do this since the principles of Roberts may be applied to various nonlinear processes (Roberts, col. 9, l. 36-38, col. 10, l. 20-23), and chirp is an indicator of an eligible nonlinear process, i.e., self-phase modulation (Kikuchi, e.g., section II on p. 869+).

Regarding the ***measuring/measured*** *chirp* limitations, the APA already discloses that, at the time of filing the application, a skilled artisan would be enabled to perform measurement of optical chirp (filed on 16 October 2007, REMARKS, p. 10).

Regarding the limitation of the "threshold value preliminarily known for said network section ***when being in its linear condition***", notice that one may implement the method in such a way that "the products of the nonlinear process are no longer detected". One may suitable characterize this situation as a linear situation. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to set the predetermined threshold of Roberts (e.g., "predetermined threshold" in col. 5, l. 6-8) to correspond to this linear situation. One of ordinary skill in the art would have been motivated to do this to avoid nonlinear effects, which could result in degradation of the optical signal (Roberts, col. 1, l. 20-21).

Regarding claim 16, Roberts in view of Kikuchi and the APA discloses:

A system for traffic management in an optical network, the system comprising:

at least one optical path extending in said network (Roberts, 4 in the Figures);

at least one measuring unit (Roberts, monitor 18 in the Figures) for measuring chirp (Kikuchi and APA, see the treatment of the measuring chirp limitation in claim 1 above) of an optical signal passing in a network section corresponding to said optical path, and for communicating a value of the measured chirp (Roberts, 19 in the Figures); and

a central traffic management unit (Roberts, controller 16) for receiving the communicated value of the measured chirp, comparing it with at least one chirp threshold value preliminarily known for said network section when being in its linear condition (Roberts, e.g., "predetermined threshold" in col. 5, l. 6-8; Kikuchi and APA, see the treatment of the measuring chirp limitation in claim 1 above; Roberts, see the treatment of the "linear condition" limitation in claim 1 above), detecting a condition of non-linearity in the network section when the value of the measured chirp exceeds said at least one chirp threshold value (Roberts, e.g., when the measured values are higher than the values associated with the following situations: "the products of the nonlinear process are no longer detected" in col. 5, l. 21-22, "within an acceptable tolerance" in col. 5, l. 22), and then making a traffic management decision in the optical network for restricting or avoiding use of said network section in the network (Roberts, e.g., "reducing the launched power level" in col. 5, l. 20).

8. **Claims 2, 4, 6-12, 14, and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts in view of Kikuchi and the APA as applied to the claims above, and further in view of Rossi et al. ("Optical performance monitoring in reconfigurable WDM optical networks using subcarrier multiplexing", hereinafter "Rossi").

Regarding claim 2, Roberts in view of Kikuchi and the APA discloses:

The method of traffic management in the optical network according to Claim 1, wherein the optical path extends between a first location (Roberts, first optical terminal 2 in the Figures) and a second location being a monitoring point (Roberts, second optical terminal 3 in the Figures) and comprises one or more optical channels (Roberts, e.g., 4 in the Figures) carrying at least said optical signal, wherein the step of detecting non-linearity and the step of making said traffic management decision respectively comprise:

measuring chirp at said at least one optical channel, at the monitoring point (Roberts, monitor 18; Kikuchi and APA, see the treatment of the measuring chirp limitation in claim 1 above);

comparing a value of the measured chirp with said at least one threshold chirp value determined for said monitoring point in said section being in linear condition (Roberts, e.g., "predetermined threshold" in col. 5, l. 6-8; Kikuchi and APA, see the treatment of the measuring chirp limitation in claim 1 above; Roberts, see the treatment of the "linear condition" limitation in claim 1 above),

in response to the measured chirp and with reference to said at least one threshold chirp value, judging about a level of non-linearity in said at least one optical channel up to the monitoring point (Roberts, e.g., "the products of the nonlinear process are no longer detected" in col. 5, l. 21-22, "within an acceptable tolerance" in col. 5, l. 22), and

in case the non-linearity level is considered higher than a selected acceptable level (Roberts, e.g., levels higher than the following examples: "the products of the nonlinear process are no longer detected" in col. 5, l. 21-22, "within an acceptable tolerance" in col. 5, l. 22), performing one or more traffic management operations (Roberts, e.g., "reducing the launched power level" in col. 5, l. 20).

Roberts in view of Kikuchi and the APA does not expressly disclose:

performing one or more traffic management operations ***from the following non-exhaustive list***:

reducing bit rate of at least one of said optical channels;

rerouting at least one of said optical channels;

reducing a number of optical channels in the optical path; and

transmitting information, previously carried at a specific wavelength, via a vacant optical channel of the same optical path at a different wavelength.

However, such traffic management operations are known in the art, as exemplified by reducing bit rate in Rossi (p. 1639, col. 2, middle paragraph, "downgrading a channels bit rate"). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement at least reducing bit rate in the method of the prior art of record. One of ordinary skill in the art would have been motivated to do this since lower bit rates lead to lower statistical risk (Kikuchi, Fig. 11, systems with lower bit rates have lower statistical risk) of transmission failure that is due to SPM-related, i.e., nonlinear, pulse broadening (Kikuchi, "pulse broadening" on p. 876, col. 1, middle paragraph).

Regarding claim 4, Roberts in view of Kikuchi, the APA, and Rossi discloses:

The method according to claim 2, further comprising a step of repeating the method from the step of measuring the chirp, up to a moment when the non-linearity level is considered to be not higher than the selected acceptable level (Roberts, implied by "until the products of the nonlinear process are no longer detected or are within an acceptable tolerance level set by the predetermined threshold" in col. 5, l. 21-23).

Regarding claims 6-8, these claims introduce limitations that further limit the traffic management operations of claim 2, i.e., the operation of "rerouting at least one of said optical channels" and the operation of "reducing a number of optical channels". However, the language of claims 2 and 6-8 only requires a rejection that addresses at least one of the traffic management operations of claim 2 and 6-8. In the treatment of claim 2 above, the standing rejection addresses the operation of "reducing bit rate". Similarly, in the treatment of claims 6-8 here, the standing rejection continues to address the operation of "reducing bit rate". As one of the traffic management operations of claims 6-8 is still addressed, claims 6-8 stand rejected.

Regarding claim 9, Roberts in view of Kikuchi, the APA, and Rossi discloses:

The method according to Claim 2, wherein said acceptable level of non-linearity (Roberts, e.g., levels higher than the following examples: "the products of the nonlinear process are no longer detected" in col. 5, l. 21-22, "within an acceptable tolerance" in col. 5, l. 22) is defined by the threshold chirp value determined for at least one said monitoring point (Roberts, e.g., "predetermined threshold" in col. 5, l. 6-8; Kikuchi and APA, see the treatment of the measuring

chirp limitation in claim 1 above; Roberts, see the treatment of the "linear condition" limitation in claim 1 above).

Roberts in view of Kikuchi, the APA, and Rossi does not expressly disclose:

wherein said monitoring point is located at the output of a dispersion compensation module DCM utilized in the optical path.

However, the use of a DCM is a common practice in the art, as exemplified by Rossi (dispersion compensator C in Fig. 12). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ a DCM in the method of the prior art of record. One of ordinary skill in the art would have been motivated to do this to overcome dispersion (Rossi, p. 876, col. 1-2, bridging paragraph). Moreover, even with or without a DCM, the scope of the monitoring teachings of the method of the prior art of record is broad enough to encompass monitoring points at any number of suitable locations. If one is interested in the non-linearity of the network after a DCM, one would obviously locate a monitoring point at that location.

Regarding claim 10, Roberts in view of Kikuchi, the APA, and Rossi discloses:

The method according to Claim 2, wherein said acceptable level of non-linearity (Roberts, e.g., levels higher than the following examples: "the products of the nonlinear process are no longer detected" in col. 5, l. 21-22, "within an acceptable tolerance" in col. 5, l. 22) is defined for a particular optical signal transmitted in a particular optical channel (Roberts, the case of only one of the channels of 12-15 in the Figures).

Roberts in view of Kikuchi, the APA, and Rossi does not expressly disclose:

The method according to Claim 2, wherein said acceptable level of non-linearity, *by selecting* ***an additional threshold BER (bit error rate) value being a maximally acceptable BER value*** *for said specific optical channel, the method thereby allowing detection of an approaching non-linearity condition.*

However, notice that it is a known practice to correlate various types of signal quality measurements with BER, as exemplified by Rossi (p. 1640, col. 2, 2nd full paragraph – p. 1641, col. 2, Fig. 2). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to correlate the signal quality measurements of the method of the prior art of record to corresponding BER values. One of ordinary skill in the art would have been motivated to do this since BER is generally known as one of the most important parameters to measure (Rossi, p. 1640, col. 2, 2nd full paragraph).

Regarding claim 11, Roberts in view of Kikuchi, the APA, and Rossi does not expressly disclose:

The method according to Claim 2, wherein said acceptable level of non-linearity is defined by selecting a range between a ***lower bound*** and an ***upper bound***, where the lower bound is presented by said threshold chirp value calculated for the optical path in its linear condition, and the upper bound is presented by an additional threshold chirp value corresponding to a maximally acceptable value of BER (bit error rate) for a particular optical signal transmitted in a particular optical channel of the optical path, the method thereby allowing detection of an approaching non-linearity condition.

However, notice that Roberts employs the concepts of "margin" and "tolerance" (col. 1, l. 30; col. 5, l. 22). Such concepts often suggest a range between a lower bound and an upper bound. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ any suitable values for the lower and upper bounds of such a range, including said threshold chirp value calculated for the optical path in its linear condition (Roberts, e.g., "predetermined threshold" in col. 5, l. 6-8; Kikuchi and APA, see the treatment of the measuring chirp limitation in claim 1 above; Roberts, see the treatment of the "linear condition" limitation in claim 1 above) and an additional threshold chirp value corresponding to a maximally acceptable value of BER (bit error rate) for a particular optical signal transmitted in a particular optical channel of the optical path (see the treatment of the BER limitations in claim 10 above).

Regarding claim 12, Roberts in view of Kikuchi, the APA, and Rossi does not expressly disclose:

The method according to Claim 11, wherein the traffic management operations are ***performed gradually****, some of them upon exceeding the lower bound and some of them upon exceeding the upper bound of said range.*

However, the gradual performance of any operation is a technique that is well known throughout various fields of art. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ gradual performance of these traffic management operations in the method of the prior art of record. One of ordinary skill in the art would have been motivated to do this since gradual performance introduces the advantages of incremental changes, which include the avoidance of undesired and unforeseen side effects that generally accompany drastic changes. Additionally, the technique of gradual performance of these traffic operations is broad enough to encompass its implementation at any suitable situation, including the situation of when the lower bound is exceeded and the situation of when the upper bound is exceeded.

Regarding claim 14, Roberts in view of Kikuchi, the APA, and Rossi does not expressly disclose:

The method according to Claim 1, wherein said step of measuring chirp measures chirp of one or more optical signals passing along at least ***two*** of said one or more optical channels of the optical path.

However, such a limitation is an obvious variation of the method of the prior art of record. That is, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to monitor multiple (at least two) optical channels of the optical path. One of ordinary skill in the art would have been motivated to do this to provide the benefits of the method of the prior art of record to multiple (at least two) optical channels.

Regarding claim 17, Roberts in view of Kikuchi, the APA, and Rossi discloses:

The system according to Claim 16, wherein the optical path comprises one or more optical channels (Roberts, e.g., 4 in the Figures) carrying at least said optical signal, and wherein the

central traffic management unit is further capable of initiating one or more operations selected from the following non-exhaustive list:

reducing bit rate of at least one of said optical channels (Rossi, p. 1639, col. 2, middle paragraph, "downgrading a channels bit rate");

rerouting at least one of said optical channels;

reducing a number of optical channels in the optical path; and

transmitting information, previously carried at a specified wavelength, via a vacant optical channel of the same optical path at a different wavelength.

9. **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts in view of Kikuchi and the APA as applied to the claims above, and further in view of Sato et al. (U.S. Patent No. 6,229,631 B1, hereinafter "Sato").

Regarding claim 15, Roberts in view of Kikuchi and the APA does not expressly disclose:

The method according to Claim 1, comprising performing thereof at a plurality of monitoring points in the optical network, thereby ensuring monitoring of non-linearity effects at sections of the network formed between the monitoring points, and performing various traffic management operations for reducing the non-linearity effects at suitable sections of the network.

However, notice that Roberts discloses monitoring at a variety of monitoring points (Figs. 1, 3, and 5). Also, the use of a plurality of monitoring point is known in the art, as exemplified by Sato (monitoring points SV 14a-14d in Fig. 1). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to perform the method of the prior art of record at a plurality of monitoring points in an optical network. One of ordinary skill in the art would have been motivated to do this to provide monitoring information for each monitoring point of the optical network, thus providing system-level monitoring information of the non-linearity effects at the various sections of the optical network (Sato, information collected at each monitoring point SV 14a-14d in Fig. 1). With such system-level monitoring information, one would promptly address the non-linearity effects at suitable sections of the network.

10. **Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts in view of Kikuchi and the APA as applied to the claims above, with reference to Kawasaki et al. (EP 0 944 191 A1, hereinafter "Kawasaki").

Regarding claim 18, Roberts in view of Kikuchi and the APA does not expressly disclose:

The method according to claim 1, wherein the step of measuring chirp comprises measuring a second derivative of phase of said optical signal with respect to time.

However, refer to Kawasaki. Kawasaki shows that one may characterize chirp according to such a second derivative (Kawasaki, second derivative in paragraph [0035]).

Response to Arguments

11. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Reynaud et al. ("Measurement of phase shifts introduced by nonlinear optical phenomena on subpicosecond pulses") is cited to show teachings about measuring the phase shift of self-phase modulation.

Stern et al. ("Self-phase modulation and dispersion in high data rate fiber-optic transmission systems") is cited to show teachings about self-phase modulation and dispersion.

Stolen et al. ("Self-phase-modulation in silica optical fibers") is cited to show teachings about self-phase modulation.

Tomaru et al. ("Heterodyne autocorrelation method for characterizing 1.55 μm optical pulse train and for measuring dispersion and nonlinearity in optical fibers") is cited to show teachings about measuring self-phase modulation (section VI).

Yu et al. ("Direct measurement of self-phase shift due to fiber nonlinearity") is cited to show teachings of measuring self-phase shift due to fiber nonlinearity.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER